Wyoming: Where Power Transmission & Generation Meet

Wyoming Infrastructure Authority

Loyd G. Drain
Executive Director

Meeting Transmission Challenges in the Rocky Mountain Region

June 21, 2011
Fort Collins, CO

Given our vast resources, we're the Energy Gateway to the West

Wyoming™
INFRASTRUCTURE AUTHORITY
An Instrumentality of the State of Wyoming

Wyoming

- *Wyoming is #1 in total energy produced in the U.S.*
- *#1 in coal production—PRB coal is marketed in 37 states*
- *#2 in natural gas production*
- *#1 in uranium reserves*
- *#1 in developable Class 6 & 7 wind resource in the West*
- *In the last year, WY has added 2BCFD+ of gas pipeline capacity*
  - *El Paso's Ruby Line from Opal, WY to Malin, OR: 1.5 BCFD*
  - *TransCanada's Bison Line from NE WY to ND: .477 BCFD*
  - *MidAmerican's Kern River expansion (WY to CA): .145 BCFD*

Wyoming Infrastructure Authority

- *Created in 2004 by the Wyoming Legislature---*

  http://legisweb.state.wy.us/statutes/statutes.aspx?file=titles/Title37/T37CH5.htm

- *Mission: diversify and expand the state's economy through improvements in the transmission grid*
- *Tools*:
  - *Can plan, finance, site, own, operate and otherwise promote transmission projects—model used contemplates plan & development only (i.e. no construction, ownership or operating role)*
  - *$10 million venture account to develop projects*
  - *$1 billion in bonding capability to help finance transmission projects*

Wyoming Infrastructure Authority

Structure:

- *Five (5) member Governor-appointed Board of Directors*
  - ***Mike Easley**, Chairman: CEO of Powder River Corporation*
  - ***Kyle White**, Vice-Chairman: VP of Regulatory and Governmental Affairs Black Hills Corporation*
  - ***Bryce Freeman**, Treasurer: Administrator of the Wyoming Office of Consumer Affairs*
  - ***J.M. Shafer**, member: Former executive with both Tri-State and Western Area Power Administration*
  - ***Dave Sparks**, member: Executive Vice President with TransCore*
- *Staff*
  - ***Loyd Drain,** Executive Director*
  - ***Holly Martinez,** Administrative Manager*
  - ***Rob Hurless**, Energy Consultant*
  - ***Tom Dennis**, Cassidy & Associates; and other Consulting Support*

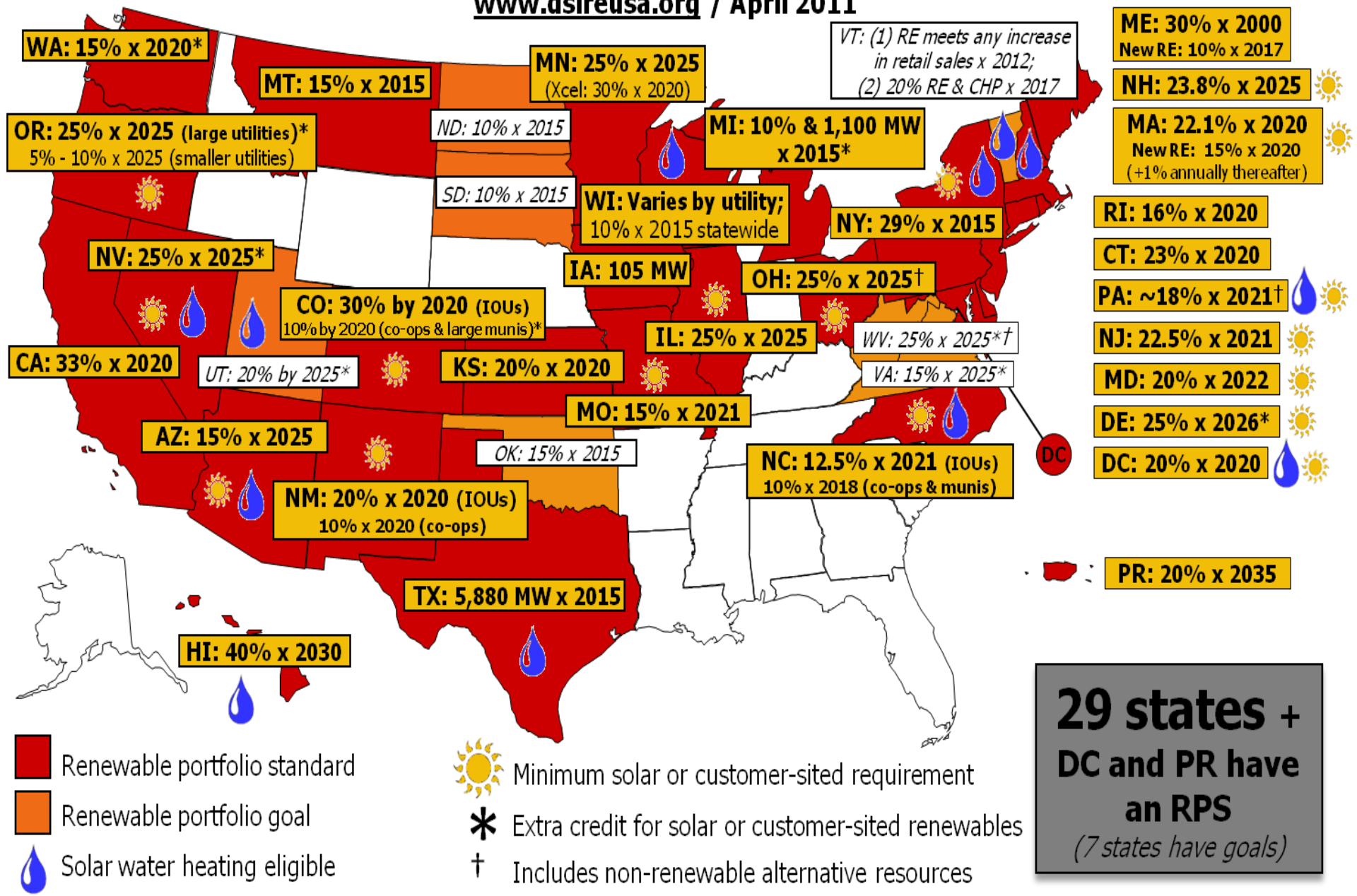
Transmission Authorities in the West

Eight States have dedicated varying resources to support transmission infrastructure and Development

- *Wyoming Infrastructure Authority (2004)*
- *Idaho Energy Resources Authority (2005)*
- *Kansas Electric Transmission Authority (2005)*
- *North Dakota Transmission Authority (2005)*
- *South Dakota Energy Infrastructure Authority (2005)*
- *Colorado Clean Energy Development Authority (2007)*
- *New Mexico Renewable Energy Transmission Authority (2007)*
- *Utah Generated Renewable Energy Electricity Network (2010)--**Latest***

RPS Policies

www.dsireusa.org / April 2011



Renewable portfolio standard

Renewable portfolio goal

Solar water heating eligible

Minimum solar or customer-sited requirement

* Extra credit for solar or customer-sited renewables

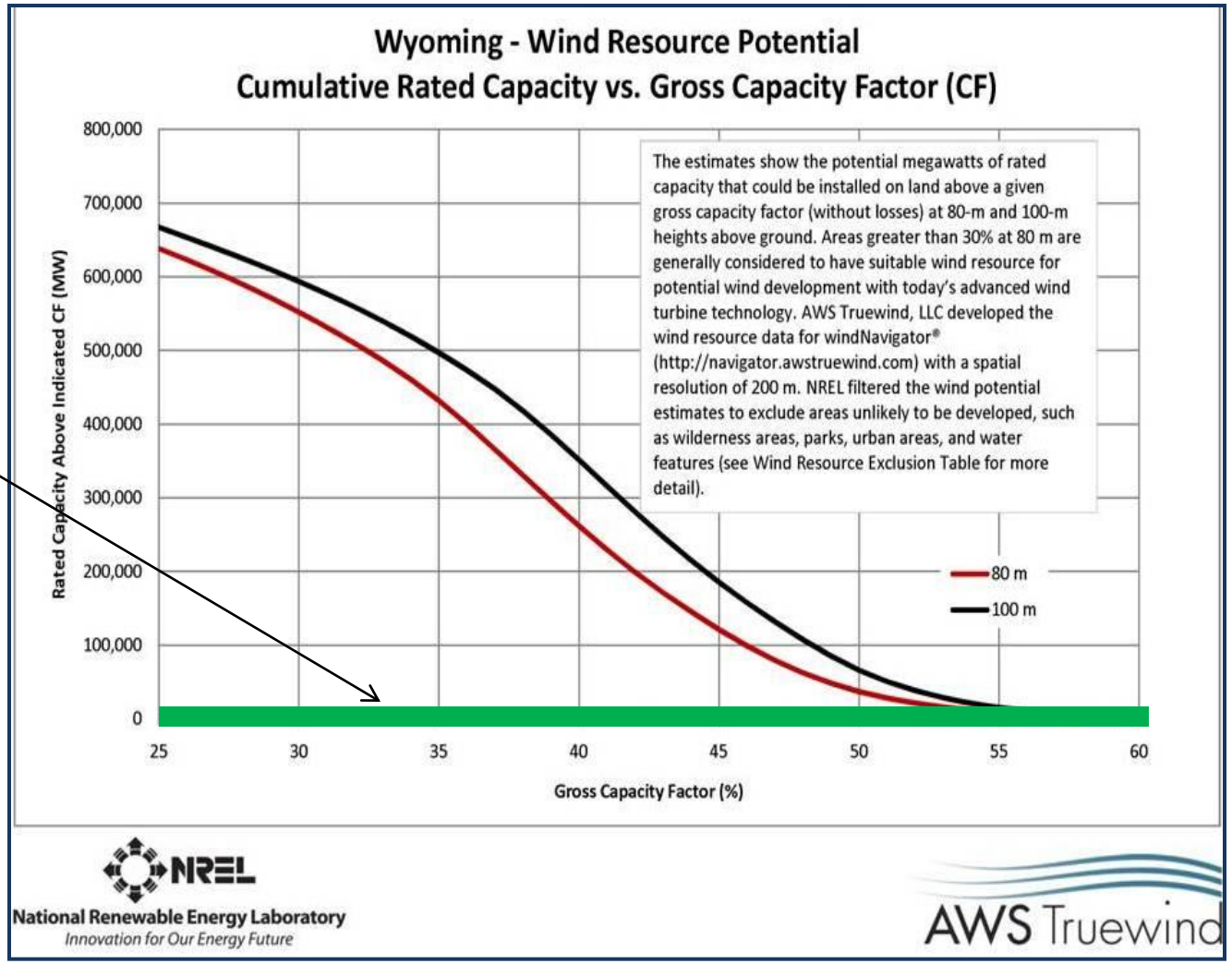
† Includes non-renewable alternative resources

29 states + DC and PR have an RPS

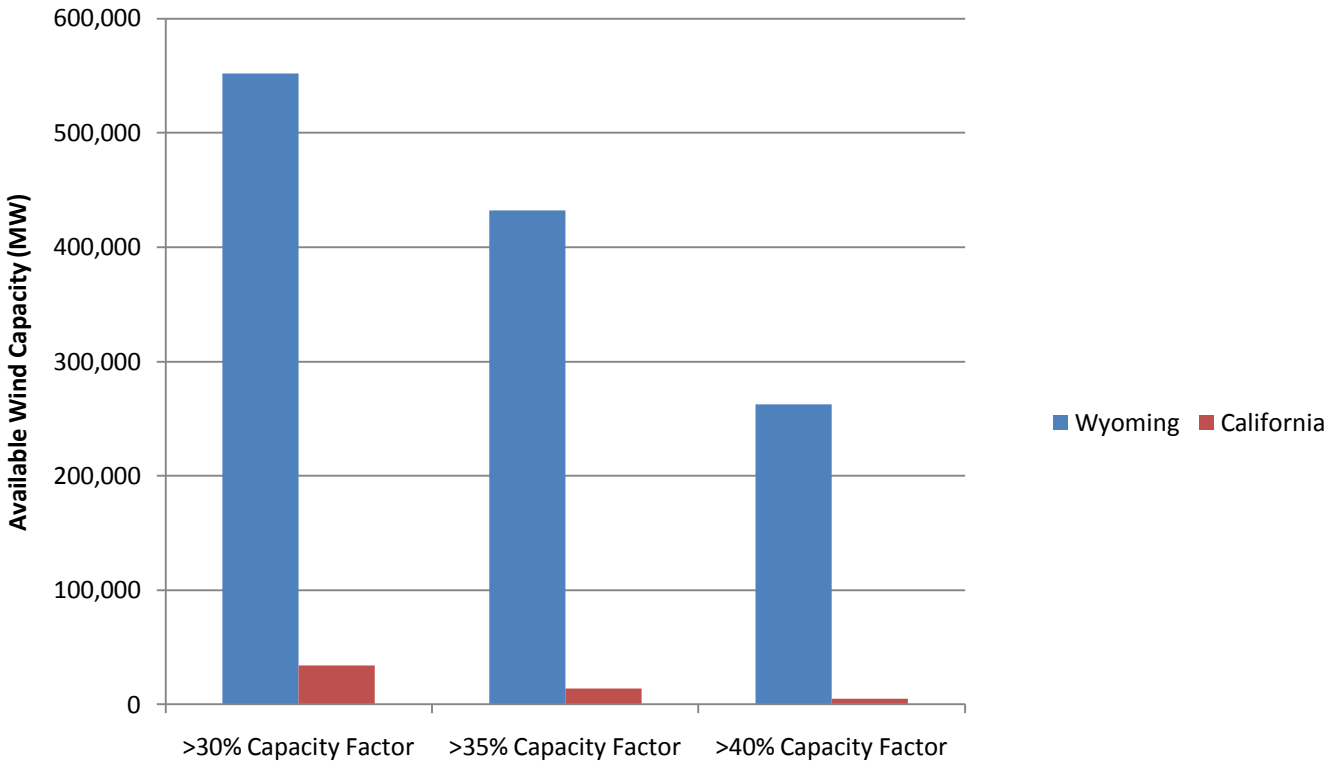
(7 states have goals)

Wind Quality and Availability in Wyoming

Amount of transmission and wind development that is possible to be constructed in the next 10 years



Wind Quality Comparisons WY vs. CA

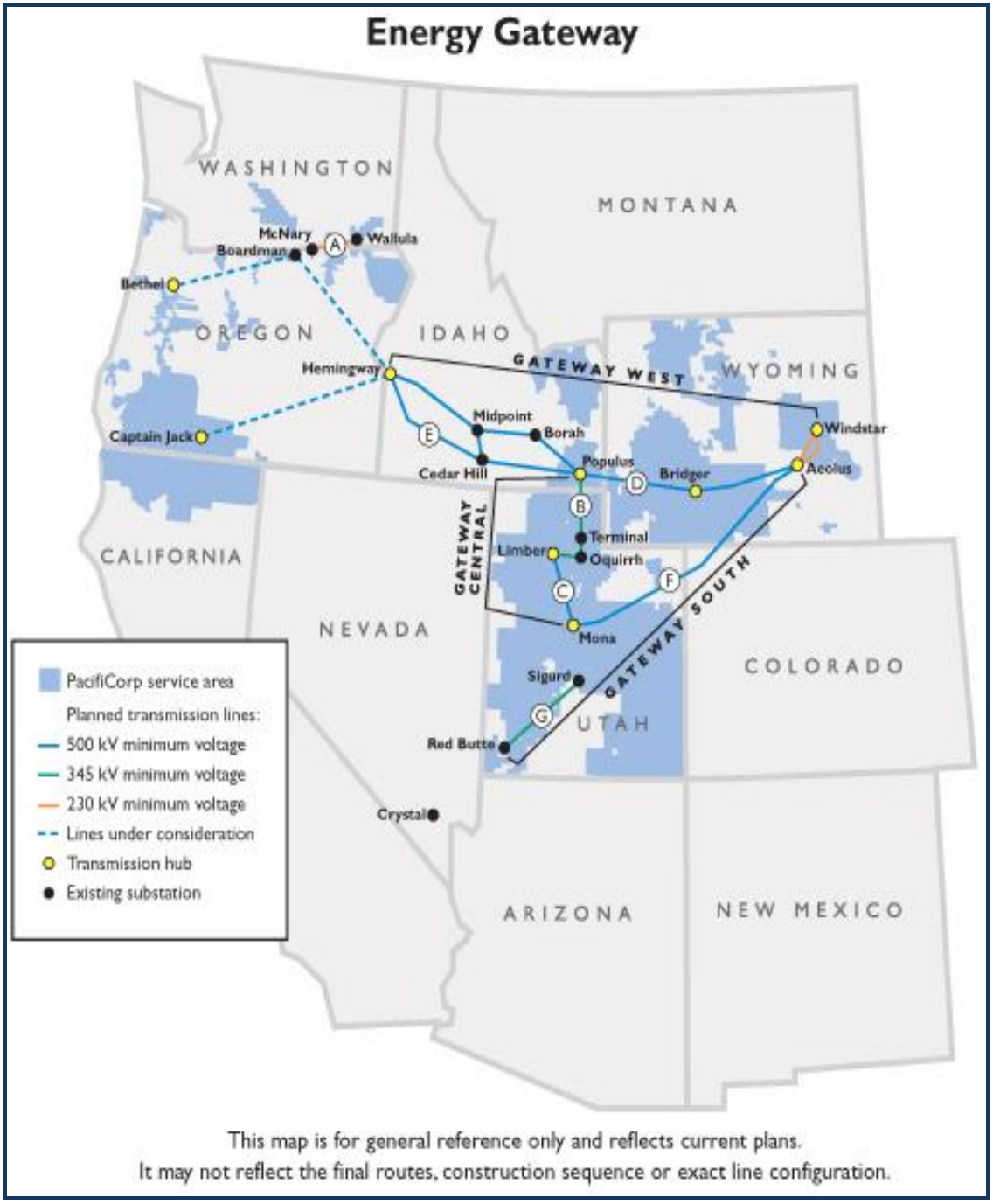


Transmission Projects under development in Wyoming

Projects

- Wyoming-Colorado Interie
- Energy Gateway (West & South)
- TransWest Express
- High Plains Express
- Zephyr
- Overland Transmission

Routes shown are for illustrative purposes only & will be finalized following the permitting and siting process



Energy Gateway Projects

PacifiCorp/MEHC & Idaho Power: 3,000 MW total from WY to Idaho & Utah

2,000 miles when complete

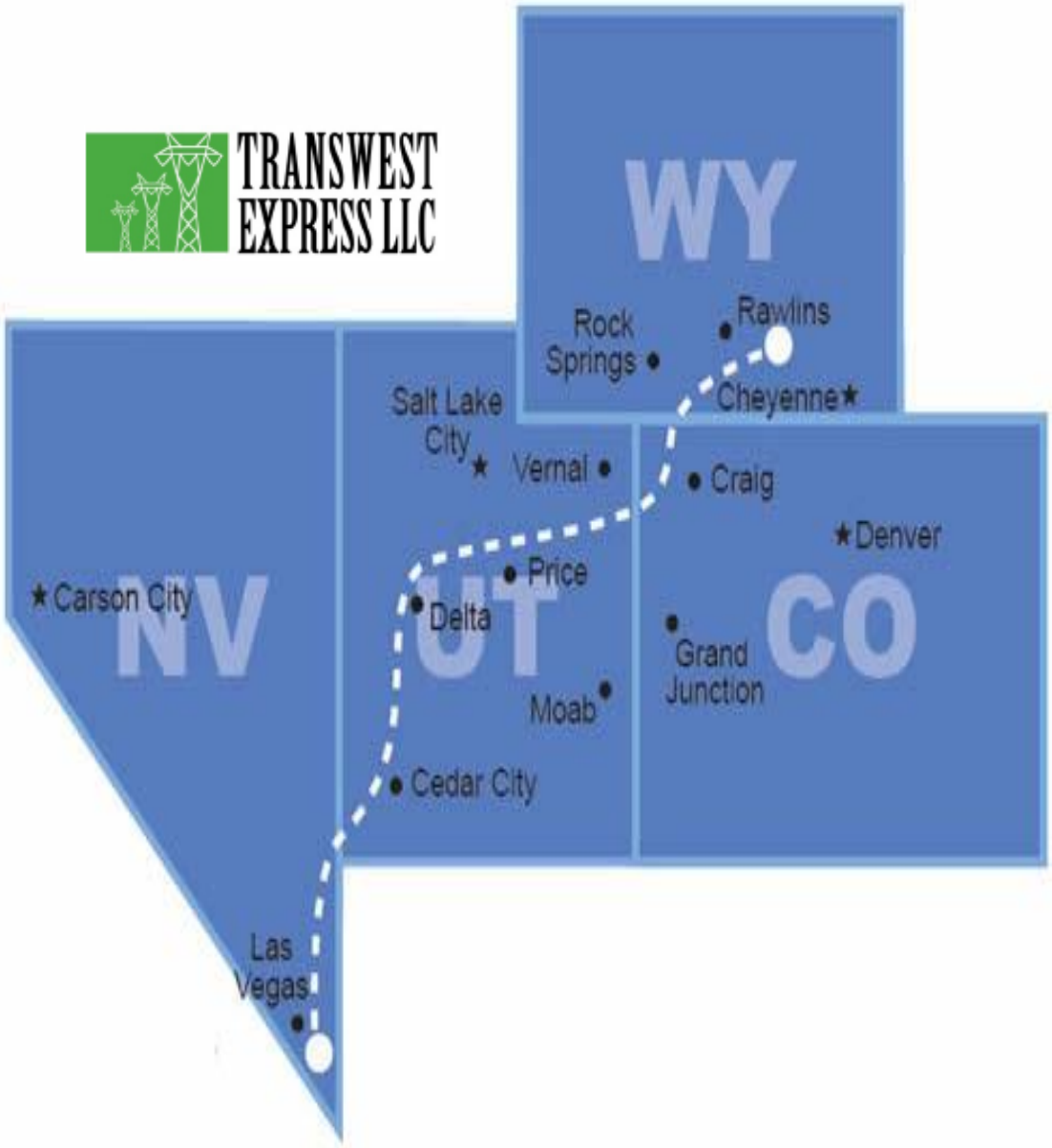
2014-2019--$6.1 billion

500 kV and 230 kV AC

Scoping meetings relative to the NEPA process have commenced

PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

IDAHO POWER



TransWest Express Project

TransWest Express, LLC:
3,000 MW from WY to CAISO south of Las Vegas
600 kV DC line—725 miles
As early as 2015
$3 billion

Western Area Power Administration has signed a non-binding agreement to participate in up to 50% of the Project--WAPA serves as a Joint Lead Agency in the NEPA process

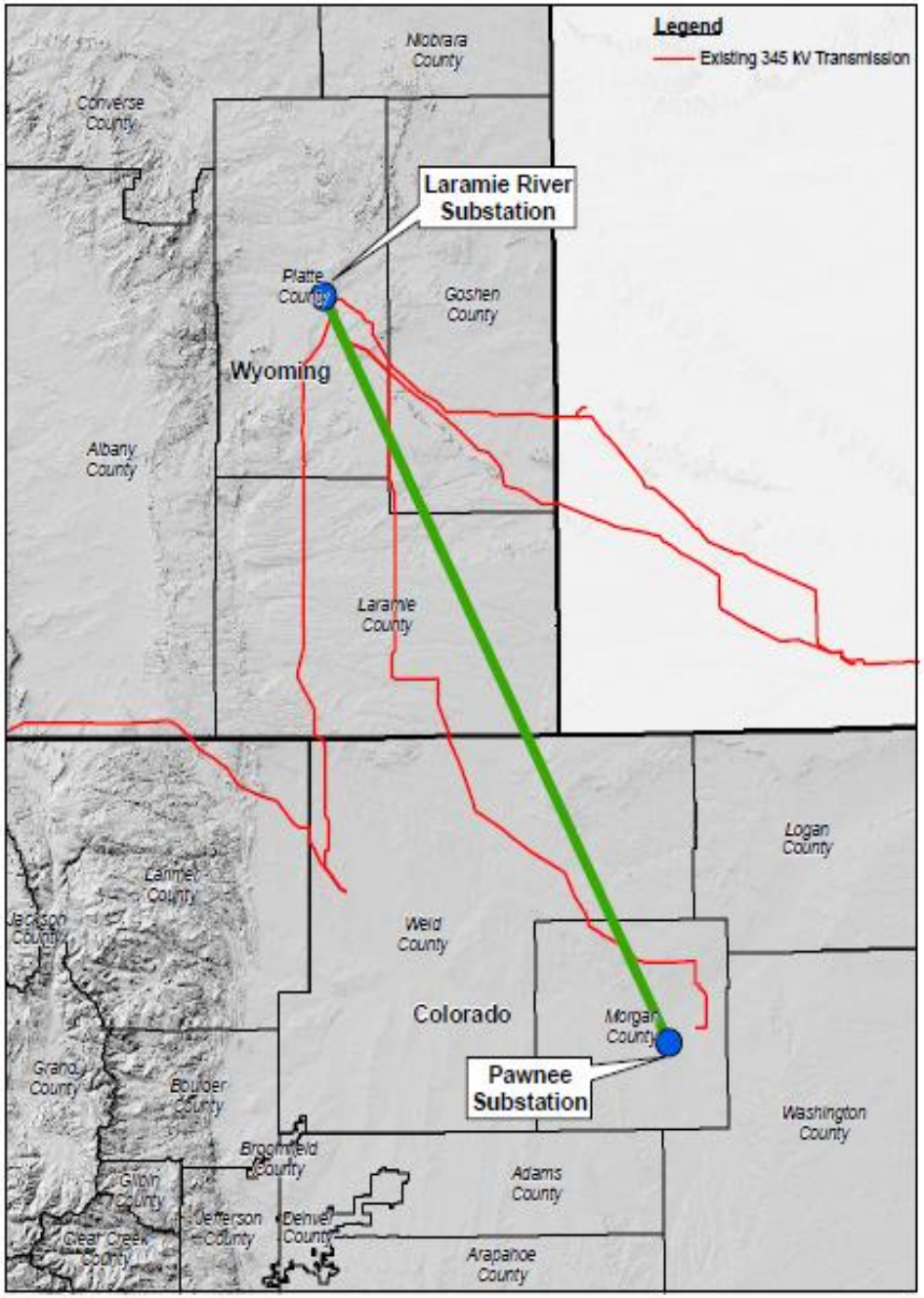
Zephyr Project

TransCanada: 3,000 MW from WY to a DC/AC converter station south of Las Vegas

Double-circuit 500 kV DC
1,100 Miles as early as 2016
$3 billion

Open season results— Pathfinder, Horizon & BP have subscribed 100% of the capacity

TransCanada
In business to deliver



Wyoming-Colorado Intertie Project

LS Power & WIA—850 MW from LRS to Colorado

345 kV Line AC—180 miles

As early as 2013

$180 million

The WIA has a 50% interest in the development of this project and its investment will be returned upon financing

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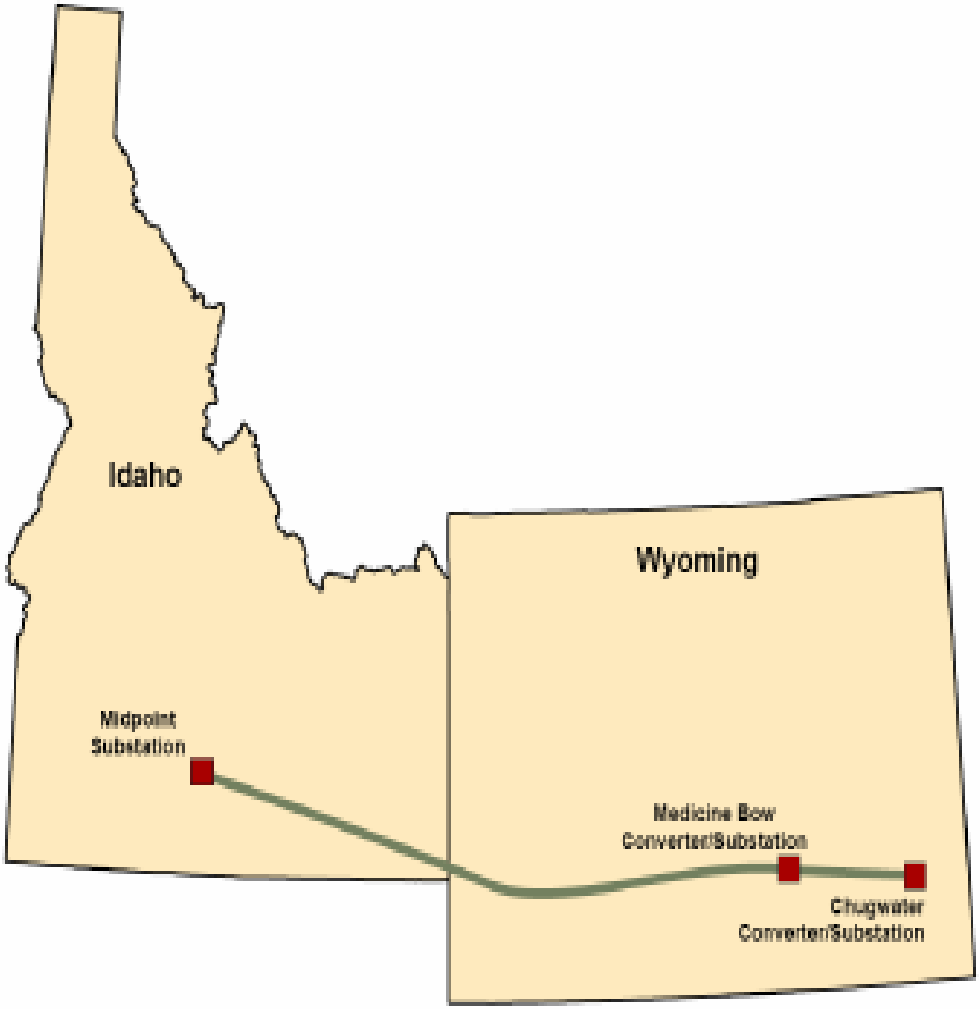
LS Power



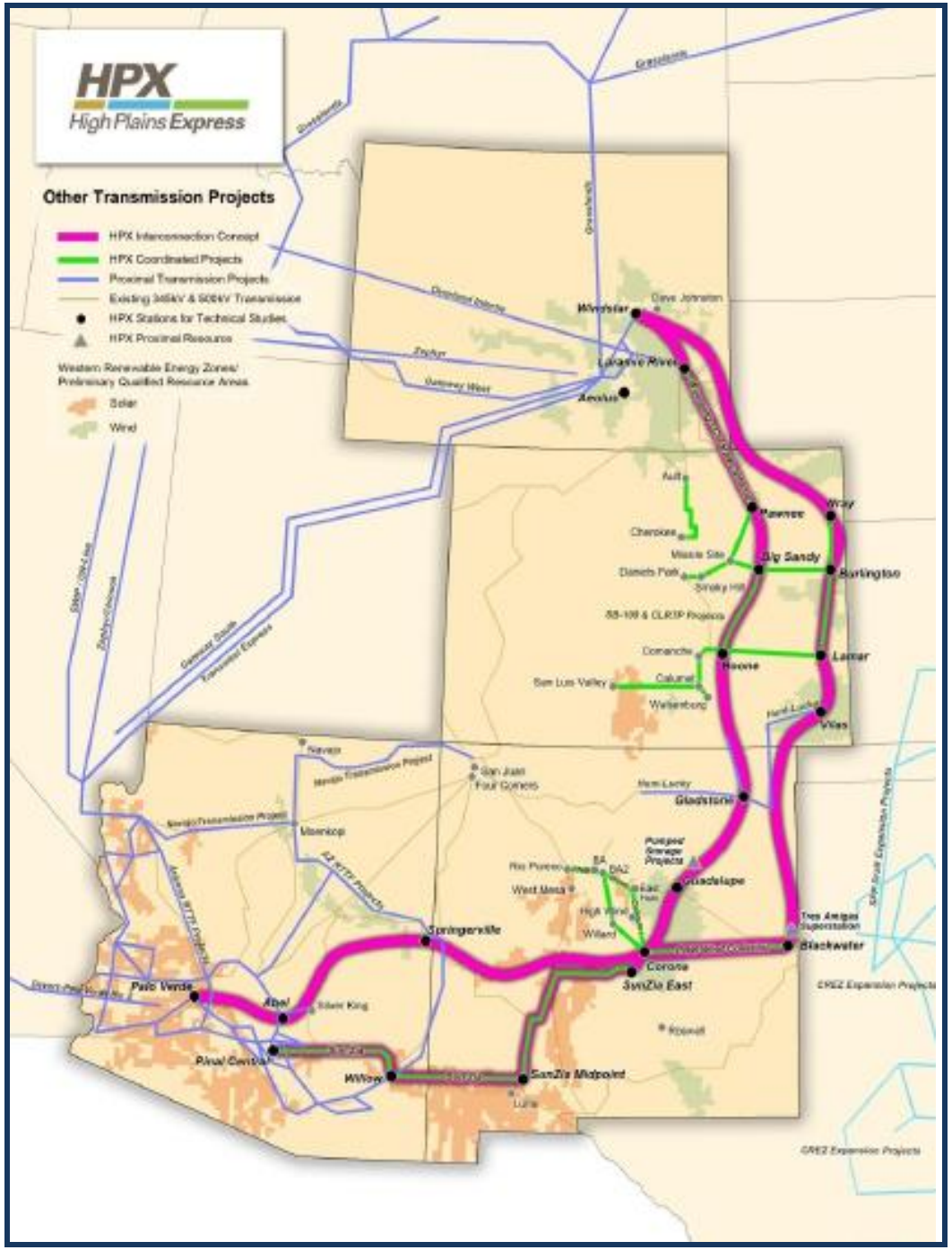
Overland Intertie Project

Jade Energy Associates, LLC (an affiliate of LS Power: up to 3,000 MW from WY to Midpoint in Idaho to interconnect with SWIP

Double-circuit 500 kV DC

As early as 2016—625 miles--$1 billion +

JADE ENERGY Associates LLC



High Plains Express Project

3,500 MW from WY to CO, NM and AZ

Double-circuit 500 kV AC line--$5 billion

The Project participants include:

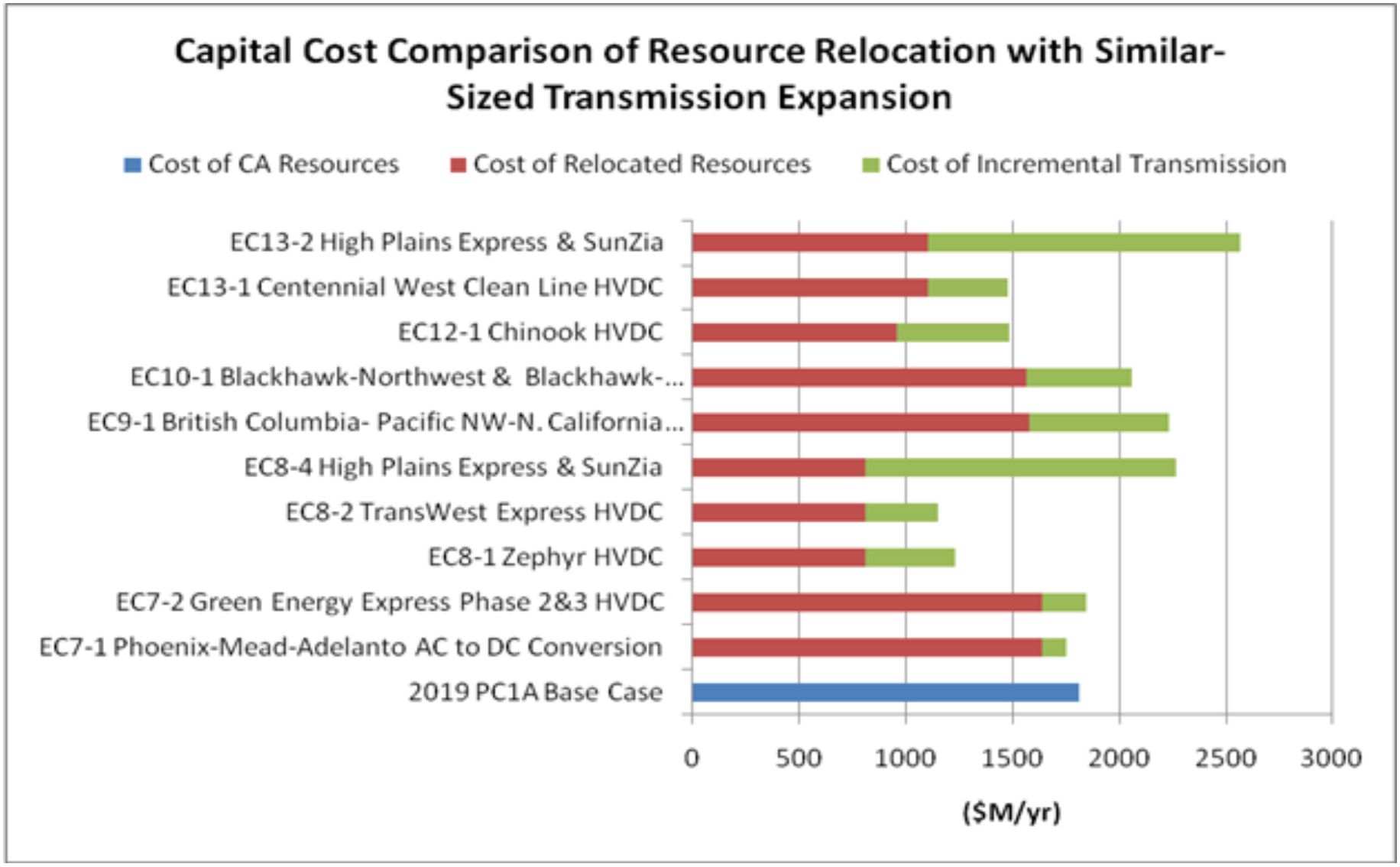
-Black Hills Corporation
-Colorado Clean Energy Development Authority
-Colorado Springs Utility
-LS Power
-New Mexico Renewable Energy Transmission Authority
-NextEra Energy Resources
-Public Service Company of New Mexico
-Salt River Project
-Tri-State Generation & Transmission Assoc.
-Western Area Power Administration
-Wyoming Infrastructure Authority
-Xcel Energy

A 3,000 MW DC Converter Station which covers approximately 160 acres

Important Issues being addressed

- *Exploring ways to mitigate the time required and cost relative to the NEPA process which currently takes 4 to 5 years at a cost of $40 to $60 million*
- *A market that wants to develop indigenous renewable resources*
- *Recognizing that every renewable project has an associated cost component, the WIA is confident that load serving entities in the marketplace and their associated regulators will seek to source renewable supplies that will have the least economic impact on the ultimate consumers, residential and commercial rate payers*
- *Studies suggest that Wyoming wind will provide geographical diversity benefits when combined with renewable resources closer to the load which will result in the mitigation of ramping events with a corresponding savings relative to integration costs*
- *Wyoming's Joint Revenue Committee has been tasked with reviewing the current tax policy on wind*
  - *had a meeting in Saratoga in May, 2011*
  - *Scheduled to meet in Buffalo on August 25-26*

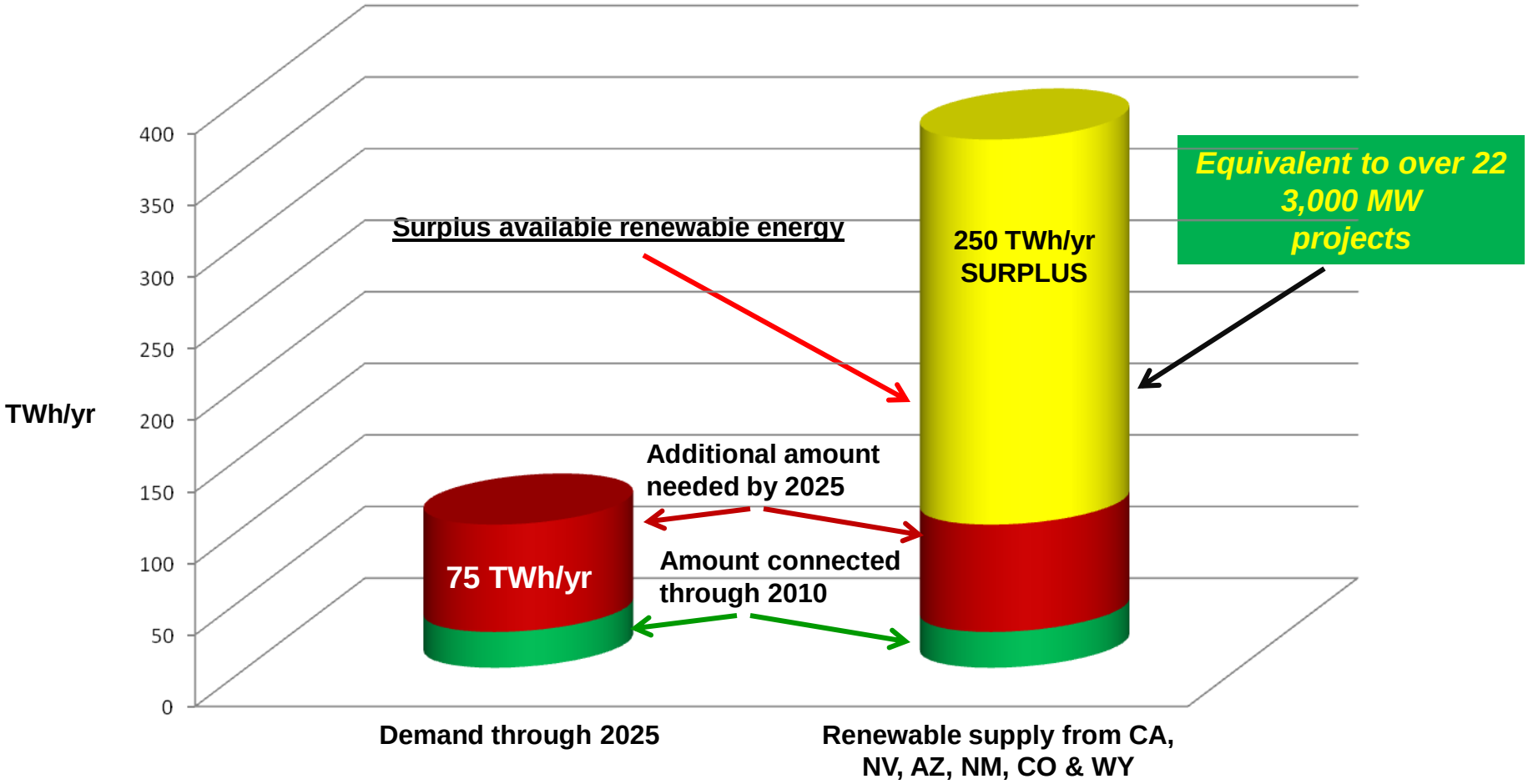
Preliminary Data from WECC 10 year plan




Healdsburg
SMUD
Hercules
Lodi
Stockton
Alameda
Area is served by both
Port of Oakland
MID & PG&E
Valley Electric
MID
TID
County & City
of S.F.
Palo Alto
Merced
Silicon Valley
Power
LADWP -
Owens Valley
PG&E
Victorville
Aha Macav
Azusa
Pasadena
Rancho Cucamonga
Needles
Colton
Glendale
Lompoc
Burbank
Bear Valley Electric
Banning
Morongo
LADWP
Anza Electric
Vernon
Industry
Cerritos
IID
Anaheim
SDG&E
Market Information

CA renewable demand vs. supply

California accounts for 2/3 of the renewable demand in the west



WHAT ABOUT THE COST OF EACH RENEWABLE SUPPLY??

Based on data from NREL; the Sierra Club; and two (2) 3,000 MW Wyoming-based renewable energy projects

NREL Economic Benefits & Job Creation Study

- *The WIA commissioned NREL in 2010 to conduct a study which will consider the following development:*
  - *9,000 MW of transmission to the marketplace*
  - *9,000 MW of wind generation*
  - *10,800 MW collector system*
  - *1,800 MW of natural gas-fired generation*
- *The benefits of such 9,000 MW of development would result in:*
  - *$11.8 to $14.8 billion in additional economic output to our State (includes construction period and 20 years of operations)*
  - *2,300 to 2,600 permanent jobs during 20 years of operation*
- *$20,000 DOE grant was applied-for and obtained mitigating WIA's cost*

Questions?

For more information, please visit our website at www.wyia.org
200 East 17th Street
Cheyenne, WY
307-635-3573

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